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Stem Cell Transplant Works in Calif. Case

Parkinson's Traits Largely Disappear

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Tuesday, April 9, 2002; Page A08

The hand tremors and other symptoms of Parkinson's disease that had started to interfere with a California man's life have largely disappeared since doctors retrieved stem cells from his brain, grew them into neurons and then transplanted those cells back into his brain, doctors reported yesterday.

The brain cell transplant was the first in humans involving "adult neural stem cells," a recently discovered type of cell that can morph into every kind of brain cell.

If studies confirm the procedure's usefulness in other patients, the approach could evolve into a biological therapy for the disease in which patients would essentially grow their own cures from a few starter cells taken from their own brains.

But doctors and neuroscientists warned against reading too much into the initial results. They noted that Parkinson's is a notoriously variable disease that ebbs and flows unpredictably, and improvement in a single patient does not prove the therapy works. Indeed, some studies have found that simply traumatizing the brain with surgery can trigger neuronal sprouting and clinical improvement, without adding any new cells or drugs. And mysteriously, the man's improvement has persisted even though the cells that were transplanted have apparently stopped making the brain chemical they were intended to produce.

"It's very exciting and promising as research," said Alex Valadka, a neurosurgeon at Baylor College of Medicine in Houston who heard the results presented yesterday in Chicago at an American Association of Neurological Surgeons meeting. "However, it's always a good idea to temper your enthusiasm with a little bit of caution. This is, after all, reported in only one patient."

Several scientists noted that the report seemed to be getting far more attention than a single-patient study would normally garner, apparently because of the intense political debate over the science and ethics of embryonic stem cell research. As part of their push for a greater focus on adult stem cells, opponents of embryo cell studies bolstered the researchers' own publicity effort by highlighting the report in repeated e-mails to media outlets.

"It's wonderful for this one guy, but that's all we know," warned Ronald McKay, a neuroscientist and stem cell expert at the National Institutes of Health.

The work was led by Michel Levesque, a neurosurgeon with Cedars-Sinai Medical Center in Los Angeles and Celmed BioSciences. He removed 50 to 100 cells from the brain of a San Clemente engineer with Parkinson's, then cultivated them in dishes for months. In March 1999 he injected about six million of the cultured brain cells into the patient's brain. About 35 percent of them were neurons, and a small fraction of those were the type that secrete dopamine, the brain chemical lacking in Parkinson's patients.

Using a brain-scanning technology, the team tallied an initial increase in dopamine levels of 58 percent and the patient improved. After a year those levels returned to what they'd been before surgery, but an 83 percent reduction in symptoms, such as tremor, has inexplicably persisted, Levesque said.

"It's not just psychological. His motor improvement is real. And the improvement is beyond the level for placebo effects," he said, referring to studies that have shown a 20 percent to 25 percent improvement in some patients who receive no treatment.

Levesque and others said the improvement may be due to other cells in the transplanted mixture -- ones that secrete not dopamine but a brain chemical known as GABA. More than half of the cells transplanted into the patient were GABA-secreting neurons, and some recent studies have suggested that GABA can suppress tremors and other symptoms of Parkinson's.

The patient, 59-year-old Dennis Turner, yesterday praised the procedure. "Two years ago I couldn't put my contact lenses in without a big problem. Now it's no problem. And I don't have to take any anti-rejection medication because the cells are myself."

Levesque is seeking permission to try the method in more patients later this year. But he also expressed his support for research on human embryonic stem cells, which he said may prove to have advantages over adult cells for some applications.

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